

Amendments to the Claims:

Following is a complete listing of the claims pending in the application, as amended, which replaces all prior versions and listings of claims in the application:

- 1-8. (Canceled.)
9. (Previously Presented) A method in a computer for providing information about a current state that is modeled with multiple state attributes, comprising:
 - receiving from a first client an indication of an interest in receiving all values for an indicated one of the state attributes of the modeled current state;
 - receiving from a second client an indication of an interest in receiving values for another of the state attributes of the modeled current state; and
 - in response to each receiving of a value for the indicated one attribute from a first source, automatically supplying the received value to the first client based on the received indication of the interest from the first client.
10. (Original) The method of claim 9 wherein the receiving of the value for the one attribute from the first source includes receiving descriptive information about the received value.
11. (Original) The method of claim 10 wherein the descriptive information includes a time at which the received value is most accurate.
12. (Original) The method of claim 10 wherein the descriptive information includes a confidence factor indicating a likelihood of accuracy of the received value.
13. (Original) The method of claim 10 wherein the supplying of the received value to the first client includes supplying the descriptive information to the first client.

14. (Original) The method of claim 9 wherein the supplying of the received value to the first client includes supplying an indication of the first source.

15. (Original) The method of claim 9 wherein the received indication from the first client additionally includes an indication of a source for the values of the one attribute, and wherein the supplying of the received value to the first client occurs only if the first source is the indicated source.

16. (Original) The method of claim 9 including supplying the received value to the first client only if the received value satisfies a criteria for values supplied to the first client.

17. (Original) The method of claim 9 including storing values for attributes that are received from sources so that the stored values can be later supplied to clients.

18. (Original) The method of claim 9 wherein the one attribute represents information about a user of the computer.

19. (Original) The method of claim 18 wherein the represented information reflects a modeled mental state of the user.

20. (Original) The method of claim 9 wherein the one attribute represents information about the computer.

21. (Original) The method of claim 9 wherein the one attribute represents information about a physical environment.

22. (Original) The method of claim 9 wherein the one attribute represents information about a cyber-environment of a user of the computer.

23. (Original) The method of claim 9 wherein the one attribute represents a current prediction about a future state.

24. (Original) The method of claim 9 including receiving from the first source a registration message before receiving the value for the one attribute, the registration message indicating an ability to supply values for the one attribute.

25. (Original) The method of claim 9 wherein the received indications from the first and second clients are registration messages.

26. (Original) The method of claim 9 including, after receiving an indication from the first client for a value of a second indicated attribute and receiving a value from a source for the second attribute, supplying to the first client the received value for the second attribute.

27. (Original) The method of claim 26 wherein the received value for the second attribute is from the first source.

28. (Original) The method of claim 9 including, after receiving a value for the one attribute from a second source, supplying the received value to the first client.

29. (Original) The method of claim 9 including, after receiving a value for the another attribute from a source, supplying the received value to the second client.

30. (Original) The method of claim 9 wherein the received value is supplied by the first source in response to receiving by the first source of input information related to the one attribute.

31. (Original) The method of claim 9 including:
receiving from the first client an indication of a condition; and
when it is determined that the condition is satisfied, notifying the first client.

32. (Original) The method of claim 31 including determining after the receiving of the value for the one attribute whether the received value satisfies the condition.

33. (Original) The method of claim 31 wherein the condition relates to a specified one of the state attributes having a specified value.

34. (Original) The method of claim 31 including monitoring the condition to determine when it is satisfied.

35. (Original) The method of claim 9 including:
receiving from a client a request for a current value of a specified state attribute; and
in response, supplying the requested value to the client by,
requesting at least one source to supply a value for the indicated state attribute;
and
sending to the client a value for the indicated state attribute received in response to the requesting.

36. (Original) The method of claim 9 wherein the first source includes a group of instructions to be executed to produce a value for the one attribute, and including loading and executing the group of instructions in response to the receiving of the indication from the first client for a value of the one attribute, the loading and executing so that the first source can produce the first value.

37. (Original) The method of claim 9 wherein the first client includes a group of instructions to be executed to receive a value for the one attribute, and including loading and executing the group of instructions in response to receiving of a value for the one attribute from a source, the loading and executing before the receiving of the indication from the first client.

38. (Original) The method of claim 9 wherein security information must be received for a source before any values of state attributes are accepted from the source.

39. (Original) The method of claim 9 wherein security information must be received for a client before any values of state attributes are supplied to the client.

40. (Original) The method of claim 9 wherein the state attributes are part of a predefined taxonomy of attributes.

41. (Original) The method of claim 9 wherein the state attributes are dynamically defined by sources who indicate an ability to supply values for the defined attributes.

42. (Original) The method of claim 9 wherein the state attributes are dynamically defined by clients who indicate an interest in receiving values for the defined attributes.

43. (Original) The method of claim 9 including supplying to the first client a mediated value for the one attribute that is based on multiple received values for the one attribute.

44. (Original) The method of claim 9 wherein receiving of the supplied value by the first client prompts the first client to present information to a user of the first client.

45. (Original) The method of claim 9 wherein the providing of the information about the modeled current state is performed by an operating system of the computer.

46. (Original) The method of claim 9 wherein the providing of the information about the modeled current state is performed by a software module, and including, upon commencement of execution of the software module, commencing execution of multiple sources that are each to supply values for at least one of the state attributes.

47. (Original) The method of claim 46 wherein the multiple sources that are to be executed are determined based on previous received indications of ability to supply values for at least one state attribute.

48. (Original) The method of claim 9 wherein the providing of the information about the modeled current state is performed by a software module, and including, upon commencement of execution of the software module, commencing execution of multiple client that are each to receive values for at least one of the state attributes.

49. (Original) The method of claim 48 wherein the multiple clients that are to be executed are determined based on previous received indications of an indication of an interest in receiving values for at least one state attribute.

50. (Currently Amended) A computer-readable medium whose contents cause a computing device to provide information about a current state of a user of a first client computing system that is modeled with multiple state attributes, by performing a method comprising:

receiving from the first client computing system a registration message that indicates an indication of an interest in receiving all available values for an indicated one of the state attributes of the modeled current state of the user of the first client computing system; and

receiving from a first source a registration message that indicates an ability to supply values for the indicated one attribute; and

after the receiving of the registration message from the first client computing system, and
in response to receiving a value for the indicated one attribute from ~~a~~ the first source,

determining that the first client computing system has an interest in receiving the received value based at least in part on the received registration message from the first client computing system; and

supplying the received value to the first client computing system based at least in part on the determining.

51. (Original) The computer-readable medium of claim 50 wherein the computer-readable medium is a memory of the computing device.

52-53. (Canceled.)

54. (Original) A computing device for providing information about a current state that is represented with multiple attributes, comprising:

an attribute mapping module that is capable of receiving from a first client an indication of an interest in receiving values for an indicated one of the attributes of the current state and of receiving from a second client an indication of an interest in receiving values for another of the attributes of the current state;

an attribute value receiver module that is capable of receiving a value for the one attribute from a first source; and

an attribute value supplier module that is capable of, in response to the receiving of the value for the one attribute, determining that the first client has an interest in receiving the received value and supplying the received value to the first client.

55. (Original) The computing device of claim 54 wherein the attribute mapping module, the attribute value receiver module, and the attribute value supplier module are components of an intermediary module executing in memory.

56. (Previously Presented) The computing device of claim 54 further comprising multiple sources and multiple clients executing in memory.

57. (Original) A computing device for providing information about a current state that is represented with multiple modeled attributes, comprising:

means for receiving from a first client an indication of an interest in receiving values for an indicated one of the modeled attributes of the current state and for receiving from a second client an indication of an interest in receiving values for another of the modeled attributes of the current state; and

means for, in response to receiving a value for the indicated one attribute from a first source, determining that the first client has an interest in receiving the received value and supplying the received value to the first client.

58. (Currently Amended) A method in a portable computer for providing information about a context that is modeled with multiple context attributes, comprising:

receiving from each of multiple clients an indication of a desire to receive multiple values for at least one of the context attributes of the context, at least some of the indicated desires each lacking restrictions on which values of the at least one context attributes are of interest;

~~for each of multiple clients, receiving an indication from the client of a desire to receive values for at least one of the context attributes of the context, the indicated desire lacking restrictions on which values of the at least one context attributes are of interest;~~

receiving from each of multiple sources an indication of an ability to supply values for one of the context attributes of the context; and

for each of the multiple sources,

receiving multiple values for the one context attribute for which the source has indicated the ability to supply values; and

after the receiving of each of the multiple values,

determining whether any of the multiple clients currently have a desire to receive values for the one context attribute for which the source has indicated the ability to supply values; and

when at least one of the multiple clients is determined to have the desire, sending the received value to each of the determined clients.

59. (Original) The method of claim 58 including, after sending of a received value for a first attribute to each of the clients determined to currently have the desire to receive values for the first attribute:

receiving from a first client an indication of a desire to receive values for the first attribute, the first client not one of the multiple clients; and

after the receiving of a next value for the first attribute, sending the received next value to the first client.

60. (Original) The method of claim 58 including, after sending of a received value for a first attribute to each of the clients determined to currently have the desire to receive values for the first attribute:

receiving from one of the determined clients an indication of a lack of desire to receive values for the first attribute; and

after the receiving of a next value for the first attribute, sending the received next value to a group of clients that does not include the one determined client.

61. (Original) The method of claim 58 wherein the context attributes represent information about a user of the portable computer.

62. (Original) The method of claim 58 wherein the context that is represented is a current context.

63. (Original) The method of claim 58 wherein the received indications from the multiple sources and multiple clients are registration messages.

64. (Original) The method of claim 58 including:

receiving from a first client an indication of a condition; and

when it is determined that the condition is satisfied, notifying the first client.

65. (Original) The method of claim 58 wherein receiving of the sent value by the client prompts the client to present information to a user of the client.

66. (Previously Presented) A computer-readable medium containing instructions that when executed cause a computing device to provide information about a context of a user of a computing system that is modeled with multiple context attributes, by performing a method comprising:

receiving from each of multiple clients an indication of a desire to receive multiple values for at least one of the context attributes of the context of the user of the computing system;

receiving from each of multiple sources an indication of an ability to supply values for one of the context attributes of the context of the user of the computing system; and

for each of the multiple sources,

receiving multiple values for the one context attribute for which the source has indicated the ability to supply values; and

after the receiving of each of the multiple values,

determining whether any of the multiple clients currently have a desire to receive values for the one context attribute for which the source has indicated the ability to supply values; and

when at least one of the multiple clients is determined to have the desire, sending the received value to each of the determined clients.

67. (Original) A portable computer for providing information about a context that is represented with multiple attributes, comprising:

an attribute mapping module that is capable of receiving from each of multiple clients an indication of a desire to receive multiple values for at least one of the attributes of the context and of receiving from each of multiple sources an indication of an ability to supply values for one of the attributes of the context; and

an attribute value supplier module that is capable of receiving from each of the multiple sources multiple values for the one attribute for which that source has indicated the ability to supply values, of determining for each received value for an attribute whether any of the multiple clients currently have a desire to receive values for that attribute, and of sending the received value to each of the clients that are determined to have the desire.

68-80. (Canceled.)

81. (Previously Presented) The method of claim 18 wherein each received value from the first source for the indicated one attribute is a value automatically measured from information automatically obtained for the user of the computer.

82. (New) The method of claim 64 further comprising, after receiving one or more attribute values, determining whether those received values satisfy the indicated condition.

83. (New) The method of claim 64 wherein the condition relates to a specified one of the context attributes having a specified value.

84. (New) The method of claim 64 further comprising monitoring the condition to determine when it is satisfied.

85. (New) The method of claim 58 wherein, for one of the multiple sources, each receiving of a value for a context attribute from the one source includes receiving descriptive information about the received value, and wherein the determining of whether any of the multiple clients currently have a desire to receive values for the that context attribute includes, for at least one of the received values from the one source, using the received description information for the received value to determine whether any of the multiple clients currently have a desire to receive that received value.

86. (New) The method of claim 85 wherein the descriptive information for a received value includes a time at which the received value is most accurate.

87. (New) The method of claim 85 wherein the descriptive information for a received value includes a confidence factor indicating a likelihood of accuracy of the received value.

88. (New) The method of claim 85 wherein the sending of a received value from the one source to a client includes supplying the descriptive information for that received value to the client.

89. (New) The method of claim 58 further comprising storing values for attributes that are received from sources so that the stored values can be later sent to clients.

90. (New) The method of claim 58 wherein at least one of the context attributes for which values are of interest to at least one client represents a modeled mental context of a user of the portable computer.

91. (New) The method of claim 58 wherein at least one of the context attributes for which values are of interest to at least one client represents information about the portable computer.

92. (New) The method of claim 58 wherein at least one of the context attributes for which values are of interest to at least one client represents information about a physical environment.

93. (New) The method of claim 58 wherein at least one of the context attributes for which values are of interest to at least one client represents information about a cyber-environment of a user of the portable computer.

94. (New) The method of claim 58 wherein at least one of the context attributes for which values are of interest to at least one client represents a current prediction about a future context.

95. (New) The method of claim 58 wherein the received values for a context attribute from one of the multiple sources are sent by the one source in response to receiving by the one source of input information related to that context attribute.

96. (New) The method of claim 58 wherein the sending of a received value to a client includes supplying an indication of the source that supplied the sent value.

97. (New) The method of claim 58 wherein the received indication from one of the clients additionally includes an indication of a source, and wherein the sending of a received value to the one client includes occurs only if the value is supplied by the indicated source.

98. (New) The method of claim 58 wherein the sending of a received value to one of the clients includes occurs only if the received value satisfies a criteria for values sent to the one client.

99. (New) The method of claim 58 further comprising:
receiving from a client a request for a current value of a specified context attribute; and
in response, supplying the requested value to the client by,
requesting at least one source to supply a value for the indicated context attribute;
and
sending to the client a value for the indicated context attribute received in
response to the requesting.

100. (New) The method of claim 58 wherein one of the sources includes a group of instructions to be executed to produce a value for one of the context attributes, and wherein the method further comprises loading and executing the group of instructions in response to receiving an indication from a client for a value of the one attribute, the loading and executing so that the one source can produce a value of the one attribute for the client.

101. (New) The method of claim 58 wherein one of the clients includes a group of instructions to be executed to receive a value for one of the context attributes, and wherein the method further comprises loading and executing the group of instructions in response to receiving a value for the one attribute from a source.

102. (New) The method of claim 58 wherein values of context attributes are accepted from one of the sources only if security information is received for the one source.

103. (New) The method of claim 58 wherein values of context attributes are supplied to one of the clients only if security information is received for the one client.

104. (New) The method of claim 58 wherein the context attributes are part of a predefined taxonomy of attributes.

105. (New) The method of claim 58 wherein the context attributes are dynamically defined by sources who indicate an ability to supply values for the defined context attributes.

106. (New) The method of claim 58 wherein the context attributes are dynamically defined by clients who indicate an interest in receiving values for the defined context attributes.

107. (New) The method of claim 58 including supplying to one of the clients a mediated value for one of the attributes that is based on multiple received values for the one attribute from multiple sources.

108. (New) The method of claim 58 wherein receipt of a sent value by one of the clients prompts the one client to present information to a user of the one client.

109. (New) The method of claim 58 wherein the method is performed by an operating system of the portable computer.

110. (New) The method of claim 58 wherein the method is performed by a software module, and wherein the method further comprises, upon commencement of execution of the software module, commencing execution of multiple sources that are each to supply values for at least one of the context attributes.

111. (New) The method of claim 110 wherein the multiple sources that are to be executed are determined based on previous received indications of ability to supply values for at least one context attribute.

112. (New) The method of claim 58 wherein the method is performed by a software module, and wherein the method further comprises, upon commencement of execution of the

software module, commencing execution of multiple client that are each to receive values for at least one of the context attributes.

113. (New) The method of claim 112 wherein the multiple clients that are to be executed are determined based on previous received indications of an indication of an interest in receiving values for at least one context attribute.

114. (New) The computer-readable medium of claim 50 wherein the method further comprises, before the receiving of the value for the indicated one attribute from the first source, determining based at least in part on the received registration message from the first source that the first source is currently available to supply the value for the indicated one attribute, and requesting the first source to supply the value for the indicated one attribute, such that the receiving of the value for the indicated one attribute from the first source is initiated the requesting of the first source to supply the value for the indicated one attribute.